

Remarks:

Applicant has carefully studied the final Examiner's Action mailed 06/28/2007, having a shortened statutory period for response set to expire 09/28/2007, and all references cited therein. The amendment appearing above and these explanatory remarks are believed to be fully responsive to the Action. Accordingly, this important patent application is now believed to be in condition for allowance.

Applicant responds to the outstanding Action by centered headings and numbered paragraphs that correspond to the centered headings and paragraphing employed by the Office, to ensure full response on the merits to each finding of the Office.

Elections/Restrictions

1. Applicant acknowledges the withdrawal of claims 12-17.

Claim Rejections – 35 U.S.C. § 102

2. Applicant acknowledges the quotation of 35 U.S.C. § 102(b).

3. Claims 1-5 and 34-36 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Burns. The cancellation of claims 3-5 and 34-35 has rendered moot this ground of rejection as it relates to said claims. Applicant respectfully traverses this ground of rejection as it relates to claims 1-2 and 36. Reconsideration and withdrawal of this ground of rejection is requested because Burns teaches the reflection of infrared radiation (IR) from the interior walls of a building. Thus, no laser and no out-of-doors objects are used.

The Office points out that Burns teaches transmissions at multiple wavelengths and multiple spaced apart targets, and Applicant does not traverse that broad teaching of Burns. However, the Burns multiple wavelength transmission relies upon diffuse IR to ensure that the multiple targets will receive the information over different wavelengths. More particularly, Burns discloses that he employs a diffuse, omnidirectional source such as a light bulb or LED. Light bulbs and LEDs are non-coherent and cannot be focused to a diffraction limited beam. Therefore, the target area in the Burns system is over a million times the size of a laser beam target area. It would not have been obvious for Burns to substitute a laser source for his light bulb or LED because Burns requires a large target area as the primary guarantee that there will be at least one successful transmission. If a laser light source were used instead of the LEDs, such use would reduce the target area to such a small size that the general purpose receivers

employed by Burns would be rendered ineffective. The enclosure of Burns is always an indoor enclosure because the Burns invention relates to local area network (LAN) computer systems such as Bluetooth where a computer and its peripherals are positioned near one another inside a building. Such a system has no utility in long-distance communications where clouds and other such remote objects are used to reflect laser beams. More importantly, such a system teaches away from long-distance communications where clouds and other such remote objects are used to reflect laser beams.

Applicant employs multiple targets where each target is used for a different communications channel. Burns neither teaches nor suggests that each target be used for a different communications channel because none of the Burns targets are used for any communications channel.

Regarding claim 2, the Office erroneously asserts that Burns teaches that "at least one light source is selected from the group consisting of a laser light source and a light-emitting diode (reference numeral 25 in Figure 2)." To the contrary, reference numeral 25 in Figure 2 identifies an infrared source only and the Burns specification further identifies an infrared source only. Applicant, not Burns, discloses a laser light source.

Regarding claim 3-5, said claims are canceled herewith because they relate to the use of Applicant's invention inside an enclosure. All pending claims relate to an invention that is used with remote objects in an out-of-doors environment such as buildings, trees, clouds, atmospheric particles, and the like

Regarding claims 34-36, the cancelation of claims 34 and 35 renders moot this ground of rejection as it relates to said claims. Regarding claim 36, the Office contends that Burns inherently teaches an external remote target consisting of atmospheric aerosols and atmospheric particles. Burns includes no such teachings or suggestions. Inherency refers to something that is automatically included. For example, when Burns discloses that his system works with peripherals such as printers, keyboards, and mice, such disclosure inherently includes speakers, video cameras, and other such peripherals. The concept of inherency does not include a leap from an indoor system for bouncing infrared radiation from walls, floors, and ceilings to an outdoor system for bouncing laser beams from atmospheric aerosols, buildings and trees. An

internal combustion engine is not inherent in a steam engine, nor is a radio inherent in a telegraph. This analogy does not imply that Applicant's invention is superior to the Burns contribution; it is employed merely to point out that the doctrine of inherency cannot be relied upon, in fairness to Applicant, to find his invention in the Burns invention.

Claim Rejections – 35 USC § 103

4. Applicant acknowledges the quotation of 35 U.S.C. § 103(a).

5. Claims 6, 18, 19 and 24 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Burns. Reconsideration and withdrawal of this ground of rejection is requested because the Office's contention that it would have been obvious to use a laser in the Burns system instead of incoherent optical light as disclosed by Burns overlooks the fact that the Burns system requires a diffuse light source that can bounce off ceilings, floors, and walls so that the receiving instruments such as computer peripheral equipment can easily detect such signals. The use of coherent light in a LAN system is counterintuitive and would be impractical. Each item of computer peripheral equipment would need to be positioned in a precise location and in a precise orientation so that the laser light could be received. Even more importantly, even if it would have been obvious to use a laser instead of an infrared source, the hypothetical Burns laser system would still have to be indoors because Burns teaches nothing whatsoever about the use of atmospheric particles instead of walls to cause backscatter of laser light. Applicant's claims draw a clear picture of Applicant's invention, and even a laser-modified version of the Burns system does not appear in that picture.

6. Claims 20-23 and 25-27 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Burns in view of Wilkerson. Reconsideration and withdrawal of this ground of rejection is requested because the Office's contention that it would have been obvious to use the LIDAR beam of Wilkerson in the system of Burns cannot overcome the already-discussed problem that a coherent light beam would create in the Burns LAN system. Burns requires a diffuse light source and it cannot be said that an improvement would have been obvious if the improvement would destroy the efficacy of the invention. Whether it would have been obvious to substitute a conventional laser or a modified laser such as a LIDAR into the Burns system is the issue. As already pointed out, such coherent light sources, if incorporated into the Burns system, would render the Burns system impractical and unworkable. The need for a diffuse light source to transmit signals to equipment enclosed in a room is now obvious in view of the Burns disclosure,

and such need teaches away from the use of either a conventional laser or a LIDAR. Wilkerson does not disclose or suggest use of a LIDAR system in a closed room having a LAN system. A combination of Burns and Wilkerson therefore suggests the invention no more than either of said references standing alone.

Nor does Wilkerson teach the use of a LIDAR beam for communication purposes between a transmitter and a remote receiver. Instead, Wilkerson harnesses the well-known Doppler effect to determine wind speed by bouncing LIDAR beams from atmospheric particles. The LIDAR beam returns to its source as in all Doppler-effect devices. There is no data communication from a transmitter to a remote receiver as disclosed and claimed by Applicant. Both Applicant and Wilkerson bounce LIDAR beams from atmospheric particles but Wilkerson detects wind speed and direction whereas Applicant provides long-distance communication. There are no data communication devices in the Wilkerson system, and absence of a data communication device does not suggest presence of a data communication device.

Regarding claims 20 and 25-27, the Office contends that Burns teaches each of the limitations relating to transmission and reception of light reflected off of remote targets. Applicant respectfully traverses that contention because, again, the teachings of Burns stop outside of the wall, floor, and ceiling-defined room that houses the peripheral equipment. Therefore, since Burns does not teach transmission and reception of light reflected off of remote, outdoor targets, Burns modified by the LIDAR of Wilkerson cannot possibly suggest the subject matter of claims 20 and 25-27. In fairness to Applicant, a cloud in the sky outside the room of Burns plays no role in the Burns system, even if the Burns system incorporates a conventional laser or a laser adapted into a LIDAR (which is a laser modified to emit coherent light in pulses and which is commonly used to measure wind direction by harnessing the Doppler effect as taught by Wilkerson).

Regarding claim 21, Applicant acknowledges that electrical signal conditioners are well-known, although they were not heretofore positioned downstream of a data transmitter and upstream of a laser light source in the novel data communication system invented and claimed by Applicant. Claim 21 depends from independent claim 20, currently amended, and is therefore allowable as a matter of law upon allowance of said claim 20.

Regarding claim 22, Applicant acknowledges that electrical signal conditioners are well-known, although they were not heretofore positioned downstream of an optical detector and

upstream of a data receiver in the novel data communication system invented and claimed by Applicant. Claim 22 depends from independent claim 20, currently amended, and is therefore allowable as a matter of law upon allowance of said claim 20.

Regarding claim 23, Applicant acknowledges that optical bandpass filters are well-known. Claim 23 depends from independent claim 20, currently amended, and is therefore allowable as a matter of law upon allowance of said claim 20.

7. Claims 30-31 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Burns in view of Welch. Reconsideration and withdrawal of this ground of rejection is requested because said claims depend from independent claim 18 and are allowable as a matter of law upon allowance of said claim 18. The Office's contention that it would have been obvious to transmit the optical signals of Burns outside of an enclosed room because Welch teaches exactly that is respectfully traversed. Welch, like Burns, is silent on the issue of signals transmitted outside an enclosed room. Like Burns, Welch's system is entirely an indoor system with no outdoor utility and no teaching or suggestion that it could be used outdoors. The Office's contention that item 11 in Figure 8 of Welch "teaches that this concept (optical signal transmitted to a remote external target wherein the backscatter optical signal is detected simultaneously by multiple telescope receivers positioned at different locations) is well known in the art" is therefore respectfully traversed because said item 11 in said Figure 8 is identified by Welch as being an enclosed room such as a hall or an auditorium. This is a far cry from teaching that clouds and other atmospheric phenomenon can be used in a laser or LIDAR system as reflective surfaces for coherent light so that backscatter optical signal is detected simultaneously by multiple telescope receivers positioned at different locations to create an entirely new type of data communication. That teaching is Applicant's and it certainly is not inherent in the room-bound systems of Burns and Welch.

8. Claims 32-33 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Burns in view of Wilkerson and Welch. Reconsideration and withdrawal of this ground of rejection is requested.

As above, the Office contends that the combination of Burns and Wilkerson differs from the claimed invention only because the combination does not teach that the optical signal is transmitted to a remote external target wherein the backscatter optical signal is detected simultaneously by multiple telescope receivers positioned at different locations. As already

noted, the combination also fails to suggest the use of a LIDAR beam in the Burns LAN because of the impracticality of using a LIDAR in a LAN. Still, the addition of Welch to the combination of Burns and Wilkerson does not provide the missing use of an external beam that is reflected from atmospheric particles, broadly known as aerosols, so that an optical signal modulated by communication data is detected simultaneously by multiple remote telescope receivers positioned at different locations; that is Applicant's teaching and is nowhere to be found in the indoor teachings of Burns and Welch nor is it taught or suggested in the wind-speed detecting system of Wilkerson. The Office again cites Figure 8 of Welch as depicting such an outdoor system but as previously noted, said Figure 8 merely depicts equipment arrayed in an indoor hall or auditorium where the reflecting surfaces are walls, a floor and a ceiling. No prior art reference of record teaches or suggests a laser or LIDAR for generating and transmitting an external beam that is reflected from atmospheric particles, broadly known as aerosols, or against trees, buildings, or other natural or man-made objects remote from the coherent light source so that a communications signal is detected simultaneously by multiple remote telescope receivers positioned at different locations.

In Applicant's system, as claimed, the use of two different targets such as a tree and a building separates the two different communications channels from one another, and provides security from cross-talk between the two channels because different spatial targets are used, *i.e.*, the tree and the building occupy different spaces. These significant aspects of the invention are recited in the independent claims as currently amended. The Wilkerson windspeed-detecting system does not suggest communication channels at all, much less separate communication channels that suppress cross-talk.

Claims 34-35 are cancelled. Claim 36 depends from independent claim 1 and adds a plurality of external remote targets including atmospheric backscatter in non-line-of-sight relation to the detector where the detector is adapted to detect multipath backscatter from the multiple backscatter spatial target regions.

Response to Arguments

9. Applicant acknowledges the new grounds of rejection.

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Conclusion

10. A Request For Continued Examination and fee is filed herewith to remove the finality of the outstanding Office Action. A Notice of Allowance is solicited. If the Office is not fully persuaded as to the merits of Applicant's position, or if an Examiner's Amendment would place the pending claims in condition for allowance, a telephone call to the undersigned at (813) 925-8505 is requested. Applicant thanks the Office for its continuing careful examination of this important patent application.

Very respectfully,

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Dated: September 28, 2007

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CERTIFICATE OF FACSIMILE TRANSMISSION
(37 C.F.R. 1.8)

I HEREBY CERTIFY that this Amendment AF, including Introductory Comments, Amendments to the Claims, and Remarks, together with a Request for Continued Examination and fee, is being transmitted by facsimile to the United States Patent and Trademark Office, Central Fax, Attn: Agustin Bello, (571) 273-8300 on September 28, 2007.

Dated: September 28, 2007

Muriel Ortiz